

## US LHC Tier2 Activity for November 2008.

### Overview

This report shows USLHC Tier2 reliability and usage during November 2008 as measured by OSG tools.

	Reliability	Availability	CPU Wallclock hours for Owner VO	CPU efficiency for Owner VO	CPU hours for Owner VO	MoU Pledge *	Wallclock hours delivered to all OSG VOs
<b>ATLAS T2 Federations</b>			ATLAS	ATLAS	ATLAS		
US-AGLT2	93%	90%	755,324	86%	647,573	416,880	868,755
US-MWT2	92%	89%	1,041,393	94%	980,529	480,384	1,144,962
US-NET2	99%	99%	434,997	91%	396,700	287,280	434,997
US-SWT2	97%	92%	367,882	82%	301,339	598,752	706,004
US-WT2	98%	98%	742,752	94%	697,617	354,240	742,752
<b>CMS T2s</b>			CMS	CMS	CMS		
T2_US_Caltech	84%	83%	546,988	80%	440,254	432,000	690,551
T2_US_Florida	97%	86%	310,472	90%	280,090	432,000	615,668
T2_US_MIT	91%	89%	443,346	76%	337,612	432,000	946,763
T2_US_Nebraska	97%	97%	304,873	40%	122,267	432,000	907,166
T2_US_Purdue	94%	95%	1,455,916	75%	1,088,532	432,000	1,747,951
T2_US_UCSD	98%	98%	894,086	59%	523,163	432,000	1,195,394
T2_US_Wisconsin	100%	100%	512,288	58%	295,856	432,000	582,369

### November specifics:

- Reliability and availability generally improved between October and November. Several sites showed improvement: US-NET2, US-MWT2, T2\_US\_Caltech, T2\_US\_MIT, T2\_US\_Nebraska, and T2\_US\_Purdue.
- The RSV bugs that hurt October results, especially for Caltech, have been fixed.

- Nebraska continued to have lower CPU efficiency, even amongst CMS sites. This site has historically had efficiency problems, but they were exacerbated in November due to a CMS application bug that caused the entire site to go idle for several days. This issue is resolved.
- The RSV collector on the OSG developed an issue that caused test results to temporarily be unavailable; the availability and reliability results are taken directly from the WLCG. Results should be restored mid-December.

### General information:

- CMS sites overall had lower CPU efficiency compared to ATLAS sites. This trend is mirrored world-wide, and the primary culprit is CMS's method of interacting with the local SE. CMS has begun to address this issue in recent CMS software versions. This is an ongoing effort, and the results might not be apparent for several months.
- MOU Pledge is in units of "CPU Hours for the month, assuming Efficiency of 60%."
- Reliability/Availability cells colored to match WLCG: green indicate a score between 90% and 100%; yellow indicate a score between 60% and 90%; orange indicate a score between 30% and 60%; red indicate a score between 0% and 30%
- The usage at sites is limited by the number of CPUs available and/or by the amount of work that the VOs need to have done. During "off-peak" months, or between major software releases, it is common to see VOs committing effort elsewhere besides running jobs.
- On OSG, sites can (but are not required to) allow other VOs to opportunistically use their resources and we include this usage in the "Total Wallclock hours delivered to OSG" (including to the Owner VO). Sharing of resources is typically affected by whether there are members of the other VO at the university or institution itself (e.g. CDF at MIT) and the availability of effort for configuration and support.
- The WLCG MoU states that Tier 2 sites should have a reliability of 95%. The availability and reliability of a site is measured by the WLCG availability algorithm, which allows us to effectively compare numbers between OSG sites and EGEE sites.

### Units of Measurement

The WLCG measures job usage in CPU hours (the amount of time the CPU was active); OSG reports show the elapsed, or "wall" time. As jobs occupy batch slots regardless of the application's CPU usage, we report this relevant measurement. The WLCG management (Ian Bird) has agreed that this is a relevant measure and will be including this sometime in the future.

In future the WLCG will be moving to a new unit of measuring performance of a CPU, changing from SpectInt2000 (SI2K) to SpectInt2006 (SI2006). This will need a slight adjustment of our calculation codes.

We also report the CPU efficiency, the ratio between CPU hours and wall hours.

All the usage numbers are multiplied by a normalization factor that accounts for the average relative difference in CPU power. The normalization factor used by the WLCG varies from site to site; for November 2008, this constant varies between 1.521 and 3.196.